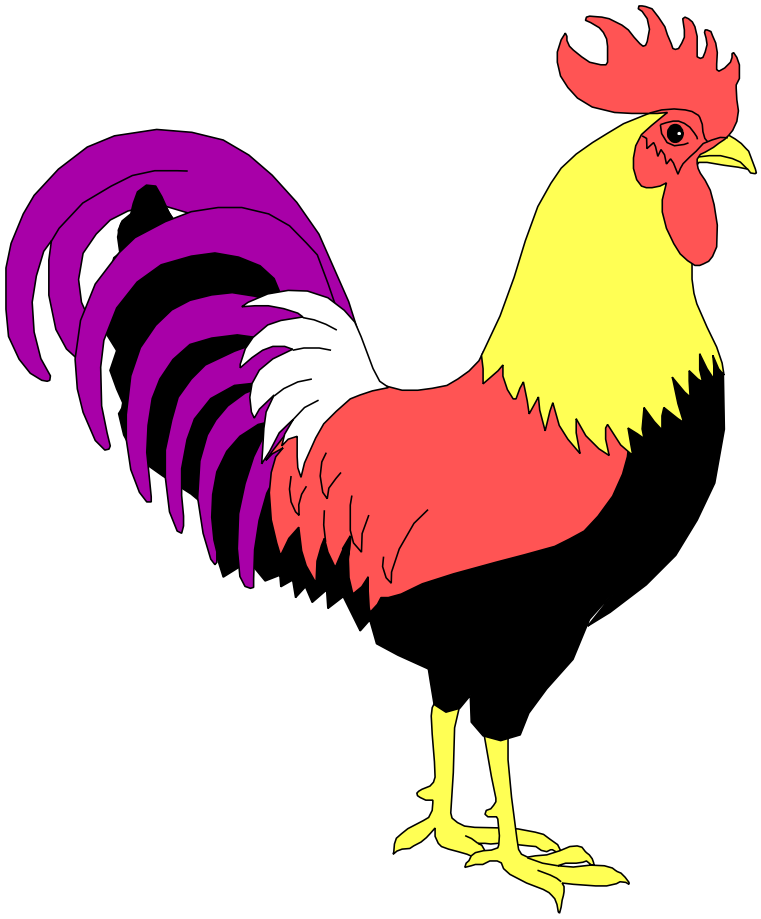


POULTRY
FINISHED PRODUCT STANDARDS

This page intended to be blank.

OBJECTIVES

After completing Module 19, the trainee will be able to accomplish the following tasks without the aid of references.

1. State the purpose of finished product standards.

2. Define the following terms.

   a. Subgroup

   b. Unit

   c. Nonconformance

   d. CUSUM

   e. Tolerance

   f. Subgroup absolute limit

   g. Action number

   h. Start number

   i. Subgroup total

3. State the method used to determine sampling times.

4. Name the two separate parts of the poultry finished product standards.

5. Name the two separate categories within the prechill finished product standard.

6. State the purpose of processing conformance tests.

7. State the purpose of trim conformance tests.

8. State the purpose of the postchill finished product standard.

9. Give the lighting requirements for the finished product reinspection stations.

10. List four establishment responsibilities in the finished product procedure.

11. List three inspection responsibilities in the finished product procedure.

12. State what is indicated by a CUSUM that reaches the action number.

13. State where prechill tests are conducted.

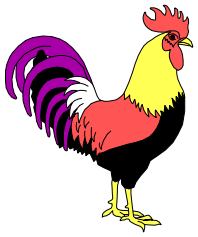
14. State the amount of time allowed to conduct 10-carcass subgroup prechill and postchill tests.

15. State the appropriate actions to take when feces is found during a 10-bird fecal contamination check.

16. State the appropriate actions to take when feces is found during a prechill test.

17. State the appropriate actions to take when feces is found during a postchill test.

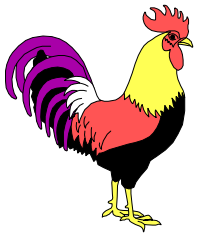
18. State how often and where 10-bird tests for fecal contamination are conducted.



INTRODUCTION

Finished Product Standards (FPS) are criteria applied to processed birds before and after chilling. The purpose of FPS is to ensure that the product being produced is consistently wholesome and unadulterated.

By design, FPS provides a clear picture of the effectiveness of the dressing and evisceration process and alerts the user to a need for adjustments before unacceptable product is produced. FPS uses the cumulative sum (CUSUM), a statistical concept, to measure the effectiveness of a process and provide this picture. When a test is performed, CUSUM is calculated to provide a result that can be compared to an established standard (i.e., the national average for acceptable performance). If the CUSUM result is equal to or better than the established standard, the process is producing acceptable product.



DEFINITIONS

- **Cumulative sum (CUSUM)** is a statistical concept used by the establishment and monitored by FSIS. CUSUM represents the accumulated number of weighted nonconformances that exceed the tolerance in a series of consecutive subgroups.

- Any failure to meet ready-to-cook specifications is a **nonconformance.**

- **Tolerance** is a weighted measure that equates to product being produced at a national product quality level.

- A **subgroup** is a 10-unit sample collected at the same time (10 birds for one test).

- A **unit** is a single poultry carcass (1 of the 10 birds for a test).

- **Random sampling** is a sample selection method that provides an equal chance for each production unit to be selected as a sample unit.

- **Prechill testing** is tests conducted by the establishment to determine whether the dressing/evisceration and trim processes are in control.

- **Postchill testing** is tests conducted by the establishment to determine whether the chilling process is in control.

- **Prechill testing at the postchill location** is testing conducted by the establishment to determine whether unacceptable product was produced during a period when the dressing/evisceration and/or trim processes were in questionable control. For these tests prechill criteria are applied to birds coming out the chiller.

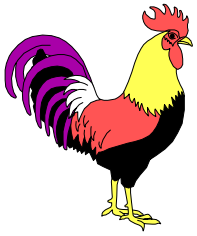
- **Rework** is reprocessing product to correct nonconformances that caused the product to be identified as unacceptable.

- The **subgroup total** is the total of the weighted nonconformances for one 10-carcass subgroup.

- The **subgroup absolute limit** is the tolerance number plus 5.

- The **action number** is a standardized value. When CUSUM reaches the action number, it indicates the process being tested might be out of control (questionable control). Product action is required when CUSUM reaches the action number.

- The **start number** is a value halfway between zero and the action number. Under certain conditions it can be used to determine the CUSUM for the next shift and to reset the CUSUM after the action number is reached.



FINISHED PRODUCT STANDARDS

FPS are applied in two separate parts:

- Prechill finished product procedure
- Postchill finished product procedure

PRECHILL

Prechill finished product procedure is divided into two categories:

- Processing Test

  Processing tests determine if the dressing/evisceration process is in control. Processing nonconformances are items which should have been removed by machinery or establishment personnel in order to make the carcass acceptable as a ready-to-cook product. These items include:

  extraneous material
  oil glands
  lungs
  intestines
  cloacas
  Bursa of Fabricius (rosebud)
  esophagus
  crops
  tracheas
  hair
  feathers and pinfeathers
  long shanks

- Trim Test

- Trim tests determine if the trim process, which involves removal of unwholesome lesions and conditions, is in control. Trim nonconformances which should have been removed by establishment personnel include:

  breast blisters
  bruises
  single tumors
  carcasses marked for synovitis, airsacculitis, etc.
  compound fractures
  short hocks
  sores, scabs, and IP
  external mutilation

(A complete list and description of nonconformances is provided in Attachment 1, which is at the end the module script.)

Prechill tests are conducted on carcasses after they pass the final washer and before they enter the chiller. Each eviscerating line must be tested. Each line's results are independent of the others. The time allowed to conduct a prechill test (both processing and trim tests) is 8 - 10 minutes.

Both the processing and trim tests can be performed using the *same 10-carcass subgroup*. However, the results are recorded on separate forms and a separate, independent CUSUM is calculated for each test.

Lighting requirements at the prechill station are 200 footcandles with a rendering index of 85.

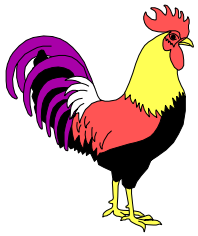
POSTCHILL

The postchill finished product procedure monitors extraneous material that carcasses pick up during the chilling process. Birds are collected after they leave the chiller but before they are divided into separate processes (e.g., cut-up, packing, freezing). The test results are recorded on a postchill FPS form and CUSUM is calculated.

Each chill system must be tested. Each system's results are independent of the others.

The time allowed to complete a postchill test is 5 - 7 minutes.

Lighting requirements at the postchill station are 200 footcandles with a color rendering index of 85.



RESPONSIBILITIES

Establishments applying FPS must meet the following responsibilities.

- They must supply the necessary facilities.
    - ♦ prechill reinspection stations located at the end of the eviscerating lines
    - ♦ postchill reinspection stations located at the end of the chillers
    - ♦ clipboard holder for FPS records
    - ♦ hangback racks that will hold 10 birds
    - ♦ hand rinsing facilities at each reinspection station
- They must provide competent, trained personnel to carry out FPS responsibilities.
- They must randomly select and record sampling times for each hour's production.
- They must conduct FPS tests at the random times.
- They must calculate the CUSUMs.

- Whenever either an establishment test or an Inspection test generates action, they must notify the IIC and take the appropriate actions. (The establishment, usually QC, is responsible for all retests, product retention, and product rework and release.)

FSIS inspectors assigned to establishments using FPS must also meet certain responsibilities.

- They must select random monitoring times.

- They must conduct both prechill and postchill tests once each half shift.

- They must compare test results to establishment results.

- They should monitor all product and process actions of the establishment by spot-checking.

- They must document noncompliance with FPS on an NR under code 04C01.

  There is noncompliance when a prechill or postchill test ***generates product action***. Specifically, product action is necessary if:

  - the CUSUM action number is reached
  - a bad CUSUM history disallows a retest
  - a good CUSUM history allows a retest but it fails

Guidelines for conducting prechill and postchill tests and the appropriate actions to take in response to test results were published in June 1987 by the Slaughter Inspection Standards and Procedures Division of FSIS. Attachment 2 contains relevant excerpts from that document.

ATTACHMENT 1

FINISHED PRODUCT STANDARD PROGRAM

DEFECT CLASSIFICATION CRITERIA

June 1, 1987
(Revised May 1997)

Slaughter Inspection Standards
and Procedures Division
Meat and Poultry Inspection Technical Services
Food Safety and Inspection Service
United States Department of Agriculture

A. PRECHILL PROCESSING NONCONFORMANCES

1. Extraneous material ≤1/16"

   a. Include any specks, tiny smears, or stain of material that measures 1/16" or less in the greatest dimension.

      EXAMPLES: Ingesta, unattached feathers, grease, bile remnants, and/or whole gall bladder or spleen, embryonic yolk, etc.

   b. Factor is one.
   c. 1 to 5 = 1 defect; 6 to 10 = 2 defects; 11 or more = 3 defects. A maximum of three incidents per carcass.

2. Extraneous material >1/16" to 1"

   a. The same material as line 1, but measuring >1/16" to 1" in the longest dimension.
   b. Factor is one.
   c. A maximum of three incidents per carcass.

3. Extraneous material >1"

   a. The same material as lines 1 - 2, but measuring greater than one inch.
   b. Factor is two.
   c. A maximum of two incidents per carcass.

4. Oil glands remnant--less than two whole glands

   a. Recognizable fragment(s) of one or both oil glands equals one incident.
   b. Factor is one.
   c. Maximum of one incident per carcass.

5. Oil glands--two whole glands.

   a. Both whole oil glands with no missing fragment equals one incident. If the oil glands are cut, but no fragment is removed, consider them to be whole. But if even a small fragment is removed, use line 4.
   b. Factor is two.
   c. A maximum of one incident per carcass.

6. Lung ≥1/4" < whole

   a. Any portion less than a whole lung, and equal to or greater than 1/4" at the greatest dimension, equals one incident.
   b. Factor is one.
   c. A maximum of two incidents per carcass.

7. Lung--whole

   a. Each whole lung equals one incident.
   b. Factor is two.
   c. A maximum of two incidents per carcass.

8. Intestine

   a. Any identifiable portion of the terminal portion of the intestinal tract with a lumen (closed circle) present, or split piece of intestine large enough to be closed to form a lumen.
   b. Factor is five.
   c. A maximum of one incident per carcass.

9. Cloaca

   a. Any identifiable portion of the terminal portion of the intestinal tract with mucosal lining.
   b. Factor is five.
   c. A maximum of one incident per carcass.

10. Bursa of Fabricius

   a. A whole rosebud, or identifiable portion with two or more mucosal folds.
   b. Factor is two.
   c. A maximum of one incident per carcass.

11. Esophagus

   a. Any portion of the esophagus with identifiable mucosal lining.
   b. Factor is two.
   c. A maximum of one incident per carcass.

12. Crop--partial--with mucosa

    a. Any portion of the crop that includes the mucosal lining.
    b. Factor is two.
    c. A maximum of one incident per carcass.

13. Crop--whole

    a. Any complete crop.
    b. Factor is five.
    c. A maximum of one incident per carcass.

14. Trachea ≤1"

    a. Identifiable portion of trachea less than or equal to one inch long.
    b. Factor is one.
    c. A maximum of one incident per carcass.

15. Trachea >1"

    a. Identifiable portion of trachea greater than one inch.
    b. Factor is two.
    c. A maximum of one incident per carcass.

16. Hair ≥1/4" 26 or more

    a. Hair that is one-fourth inch long or longer measured from the top of the follicle to the end of the hair.
    b. Factor is one.
    c. a maximum of one incident per carcass.

17. Feathers and/or Pinfeathers <1"

    a. Attached feathers or protruding pinfeathers less than one inch long. Scored 5 to 10 per carcass as one incident, 11 to 15 per carcass as two incidents, and 16 or more as three incidents.
    b. Factor is one.
    c. A maximum of three incidents per carcass.

18. Feathers ≥1"

    a. Attached feathers longer than or equal to one inch. Scored 1 to 3 per carcass as one incident, 4 to 6 per carcass as two incidents, and 7 or more as three incidents.
    b. Factor is one.
    c. A maximum of three incidents per carcass.

19. Long shank--both condyles covered

    a. If the complete tibiotarsal joint is covered, it equals one incident.
    b. Factor is two.
    c. A maximum of two incidents per carcass.

B. PRECHILL TRIM NONCONFORMANCES

1. Breast blister

    a. Inflammatory tissue, fluid, or pus between the skin and keel must be trimmed if membrane Aslips≅ or if firm nodule is greater than 2" in diameter (dime size).
    b. Factor is two.
    c. A maximum of one incident per carcass.

2. Breast blister--partially trimmed

    a. All inflammatory tissue, including that which adheres tightly to the keel bone, must be removed.
    b. Factor is one.
    c. A maximum of one incident per carcass.

3. Bruise 1/2" - 1"

    a. Blood clumps or clots in the superficial layers of tissue, skin, muscle or loose subcutaneous tissue may be slit and the blood completely washed out. When the bruise extends into the deeper layers of muscle, the affected tissue must be removed. Very small bruises less than 2" (dime size) and areas showing only slight reddening need not be counted as defects.
    b. Factor is one.
    c. A maximum of five incidents per carcass.

4. Bruise >1"

    a. Same criteria as in line three, but greater than one inch in greatest dimension.
    b. Factor is two.
    c. A maximum of three incidents per carcass.

5. Bruise black/green 1/4" - 1"

    a. Bruises 1/4" to 1" that have changed from red to a black/blue or green color due to age.
    b. Factor is two.
    c. A maximum of three incidents per carcass.

6. Bruise black/green >1"

   a. Same as line 5, but measuring greater than 1" in greatest dimension.
   b. Factor is five.
   c. A maximum of two incidents per carcass.

7. Trimmable lesions/Condition

   a. A tumor or identifiable portion of a tumor on any part of the carcass.
   b. Trimmable synovitis, airsacculitis (saddle/frog), lesions that have not been removed.
   c. Lesion/condition subject to removal following a locally approved clean-out process. Examples: airsacculitis, salpingitis, nephritis, spleen or liver conditions requiring removal of the kidneys.

      *All plants shall be encouraged to develop locally approved permanent marking systems that identify carcasses with removable lesions/conditions on the inside surfaces. When removable lesions/conditions are identified inside the carcass by the inspector, the helper will be notified to apply the permanent mark. When removable inside lesions/conditions are identified without the permanent mark, the error is not recorded on line 7. The affected carcass(es) will be hung back for IIC disposition and corrective action.

   d. Factor is five.
   e. A maximum of one incident per carcass.

8. Failure to complete task as indicated by marking system.

   EXAMPLE: Synovitis, airsacculitis, IP, contamination, etc.

   a. When plants have an approved marking system, the helper, under the inspector's direction, will apply a mark to the carcass, indicating to the trimmer(s) that specific action must be taken on that carcass. When airsac and kidney clean out, or synovitis part removal, or carcass removal from the line is not completed, or only partially completed, this occurrence is recorded as one incident.
   b. Factor is five. It will also be recorded as a line 7 nonconformance for a carcass, giving a total factor of 10.
   c. A maximum of one incident per carcass.

9. Compound fracture

   a. Any bone fracture (i.e., leg or wing) that has caused an opening through the skin. May be accompanied with a bruise, but not always. Do not count the bruise in line 3 or 4 if it is associated with the compound fracture.
   b. Factor is two.
   c. A maximum of three incidents per carcass.

10. Wingtip compound fracture

   a. Same criteria as line 9, but only for wingtips.

      NOTE: Bruises not associated with the fracture should be recorded in the appropriate lines.
   b. Factor is one.
   c. A maximum of two incidents per carcass.

11. Untrimmed short hock

   a. When no cartilage of the hock surface is present and no tendons are attached to the bone.
   b. Factor is two.
   c. A maximum of two incidents per carcass.

12. Sore, scabs, inflammatory process (IP), etc. $\leq$ 1/2"

   a. Any defects such as sores, abscesses, scabs, wounds, dermatitis, inflammatory process that measure less than or equal to 2" in the greatest dimension.
   b. Factor is two.
   c. A maximum of two incidents per carcass.

13. Sores, scabs, etc. >1/2"

   a. Same as line 12, but greatest dimension is greater than 2", or a cluster of smaller lesions in close proximity >2≅. this category also includes turkey leg edema.
   b. Factor is five.
   c. A maximum of one incident per carcass.

14. External mutilation

    a. Mutilation to the skin and/or muscle that is caused by the slaughter, dressing, or eviscerating processes. Skinned elbows (bucked wings) do not require trim unless affected wing joint capsule is also opened.
    b. Factor is one.
    c. A maximum of three incidents per carcass.

C. POSTCHILL NONCONFORMANCES -- Designed to monitor those nonconformances added to product during the chilling process.

1. Extraneous material ≤1/16"

   a. Include specks, grease, or unidentifiable foreign material that measure 1/16" or less in the greatest dimension.

   Example: Ingesta, grease, or unidentifiable foreign material.

   b. Factor is one.
   c. 3 to 7 = 1 defect; 8 to 12 = 2 defects; 13 or more = 3 defects. A maximum of three incidents per carcass.

2. Extraneous material >1/16" to 1"

   a. This includes ingesta, grease, or unidentifiable foreign material measuring 1/16" to 1'' in longest dimension.
   b. Factor is one.
   c. A maximum of three incidents per carcass.

3. Extraneous material >1"

   a. The same material as line 2, but measuring greater than one inch.
   b. Factor is two.
   c. A maximum of two incidents per carcass.

ATTACHMENT 2

Finished Product Standards Program
For Poultry Inspection Systems
(Excerpts)

June 1, 1987

Slaughter Inspection Standards
and Procedures Division
Meat and Poultry Inspection Technical Services
Food Safety and Inspection Service
United States Department of Agriculture

I. Introduction

…… (omitted)

II. Finished Product Procedure

The finished product standards are applied in two separate parts. The first is designed to assure that the slaughter and evisceration procedures are in control and are producing product in conformance with the agency's standards. This conformance is measured by determining the CUSUM on consecutive 10-bird subgroup samples collected prior to product entering the chilling system (PRECHILL).

The second part of the finished product standards is designed to monitor the production through the chill system to assure that it meets the agency's postchill finished product standards. This part is designed to be independent of the prechill part. Its primary concern is to monitor extraneous material that could be picked up through the chilling process. This conformance is measured by determining the CUSUM on consecutive 10-bird subgroup samples as they exit the chilling system (POSTCHILL).

A. Prechill Finished Product Procedure

The prechill finished product standard for poultry system carcasses has been divided into two separate categories. One, processing conformance, is designed to monitor the output of the dressing and evisceration procedures. The other, trim conformance, monitors the plant's ability to remove unwholesome lesions and conditions from inspected carcasses. Each category is monitored independently of the other category.

1. Process in control

If the CUSUM is less than the action number and the subgroup absolute limit is not exceeded, the process is judged to be in control. This is considered normal process control and the following responsibilities of the program must be met:

a. Plant monitoring shall:

- At the start of each shift, randomly select and record hourly subgroup times for each production hour before product reaches the prechill reinspection station on the production line. These times must be recorded in "Remarks" section of a prechill form and be available for FSIS monitoring at that time.

- Conduct a 10-bird subgroup test at the preselected random time on each poultry production line for processing and trim nonconformances.

- Collect subgroup samples from the line at the random time. All ten samples of the subgroup should be selected at the random time. Try to collect ten consecutive birds, or sequentially select the sample by pointing at a bird, counting and selecting every fifth bird from the line until the 10-bird subgroup is selected. Do not select individual birds. The total subgroup shall be selected to be representative of the production at the time of sample selection.

- Closely and thoroughly observe each bird at the reinspection station under lighting that meets the minimum 200 footcandle and 85 color rendering index requirements.

- Compare each nonconformance observed on each sample in both dressing and trim categories to the conformance criteria. Record all sample nonconformances in accordance with criteria weight.

- Total the subgroup nonconformance weights and calculate the CUSUM by subtracting the tolerance from the sum of the subgroup total and the starting CUSUM.

- Immediately record the current CUSUM number on the FSIS Form 6500-1 or 6500-2, and keep production informed about any process trend that may need to be addressed.

b. Plant production shall:

- Consistently produce product in compliance with the prechill finished product standards.

- Respond to unfavorable trends shown by plant monitoring and inspection tests by reviewing the records, assigning a probable

cause, and correcting the process as needed to consistently produce acceptable product for the consumer.

c. Inspection shall:

- Spot-check plant actions to assure they are meeting their program requirements.
- Select random times for monitoring subgroup tests for each half-shift on the production line. In plants that have multiple evisceration lines on a production shift, all lines will need to be monitored at the random times. A coin flip may be used to determine which line is monitored first at the random time.
- Collect monitoring subgroup samples at preselected times using the same sampling methods described under plant responsibilities.
- Conduct 10-bird monitoring subgroup tests using the same testing methods described under plant responsibilities.
- Compare the results to the plant's results for agreement. If the results are not in agreement, correlate them with the responsible plant-monitoring supervisor.
- Notify the responsible plant-monitoring supervisor to initiate corrective action when an FSIS monitoring subgroup total exceeds the subgroup absolute limit.
- Record all FSIS prechill monitoring observations, results, and actions on FSIS Forms 6500-1 or 6500-2 used by inspection. These records shall contain all findings from FSIS observations in order to reflect the process results and the plant's willingness to follow its program. Any process correction required outside of the program design should be documented, distributed, and filed in a separate folder.

2. Subgroup absolute limit exceeded

If either an inspection or plant individual subgroup total exceeds the subgroup absolute limit of tolerance plus 5 (T+5)

Plant monitoring shall:

- Determine if any of the immediate past 5 plant prechill subgroups for that category (processing or trim) resulted in a CUSUM above the start number.

  If no: Immediately conduct a retest subgroup on that category of prechill to determine sample validity. If the retest subgroup total equals tolerance or less, random time testing resumes. If the retest subgroup total exceeds tolerance, then plant monitoring will begin process actions in II.A.4.a. In either case, results will be used to calculate CUSUM.

  If yes: Plant monitoring will begin process actions in II.A.4.a.

3. Trimmable lesion/condition found

If either inspection or plant monitoring finds trimmable lesions or conditions during a prechill subgroup test as identified on line 7 of FSIS Form 6500-2 and specified in current defect classification criteria:

Plant monitoring shall:

- Immediately conduct an additional subgroup test for the same trimmable lesion/condition category*.

  If no additional item in the same category is found on retest, resume random time sampling.

  If an additional item in the same category is found on retest, initiate corrective action as indicated in II.A.4.a. for this category only.

*The action generated by pathology is divided into two separate categories based on operations within the production process.

- Trimmable pathology – those conditions inspected and passed subject to trim. Examples: synovitis, tumors, airsacculitis (saddle, frog), etc.

- Pathological conditions or lesions inspected and passed subject to removal by a locally approved clean-out process. Examples: airsacculitis, salpingitis, nephritis, spleen or liver conditions requiring

removal of kidneys.

4. CUSUM reaches action number

Once CUSUM reaches the action number, the process is judged to be in questionable control. When this happens, specific actions are required of plant monitoring, production, and inspection.

a. Plant monitoring shall:

- Immediately notify the IIC and the production supervisor responsible for the affected evisceration line that the process has reached the action number.

- Suspend random time prechill and postchill subgroup testing of the affected nonconformance category (processing or trim).

- Examine finished product records with the responsible production supervisor to help determine the probable cause of action.

- Conduct subgroup tests on all of the poultry in the chill system after chilling is completed using the prechill standard. A test will be conducted on at least each thirty minutes of volume in the system. Postchill testing using prechill criteria will begin immediately after notification of production. If any of these additional tests after chilling result in a subgroup total exceeding tolerance, subsequent product at the postchill location will be identified for rework by plant monitoring personnel. Product will continue to be accumulated for rework until a subsequent subgroup test results in a subgroup total equal to or less than tolerance.

- Conduct subgroup tests at prechill to determine the adequacy of production corrective action. If the prechill test results in a subgroup total exceeding the tolerance, production is again notified and the number of additional postchill tests using the prechill standard is increased to include the additional product represented by the test.
- After two consecutive prechill subgroup tests result in subgroup totals equal to or less than tolerance, three things happen:

  1. Plant monitoring resumes random time prechill subgroup

testing.

2. Plant monitoring will identify product entering the chill system that will mark the end of the retest action upon arrival at the postchill sampling location. The method of product identification will be agreed to by the IIC. This may be a known time that product is in the chill system or a series of birds marked and placed into the chiller to mark the time when the process control birds exit the chiller. Product exiting the chiller prior to the first marked bird would be subject to the additional testing criteria.

3. CUSUM is reset.

   If the two consecutive prechill subgroup tests that demonstrate regained process control with subgroup totals at or below tolerance do not cause the CUSUM to fall to start or below, CUSUM is reset at the start number.

b. Production shall:

- Review the finished product prechill record with plant monitoring personnel to assign and correct the cause of the action.

- Immediately assign employees to the prechill location to assure poultry is corrected to meet the prechill standards prior to chilling.

- Make and maintain process corrections that will result in product meeting the prechill product standards. Note and initial corrective actions taken on the appropriate finished product prechill record.

c. Inspection shall:

- Monitor product and process actions by making spot-check observations to assure that all the program requirements are met.

- Correlate nonconformance criteria with the monitoring supervisor as needed. The plant is responsible for training its

people.

- Record all monitoring results on the appropriate FPS form used by inspection. Any process correction required outside the FPS program design should be documented, distributed, and filed in a separate folder.

- Suspend random time monitoring of the affected nonconformance category (processing or trim) when monitoring personnel are conducting product action in that category. If only one category is involved, the other category will continue to be monitored at the random time.

B. Postchill Finished Product Procedure

Responsibilities of plant monitoring, production, and inspection change depending on the CUSUM earned by the process. These postchill subgroups will be collected after the product leaves the chiller but before the product is divided into separate processes (cut-up, ice pack, and grade). All ten samples of the subgroup should be selected at the random time, with all samples as close to the same production time and location as possible. Try to collect ten consecutive birds representing the total production. Do not select individual birds.

Each bird will be closely and thoroughly observed and its conformance measured against the postchill criteria. After close observation of each bird in the sample, total the subgroup nonconformance weights and calculate the CUSUM by subtracting the tolerance from the sum of the subgroup total and the starting CUSUM. Use postchill criteria and numbers.

1. Process in control

The CUSUM reflects recent process control. If the CUSUM is less than the action number and the subgroup absolute limit is not exceeded, the process is judged to be in control. This is considered normal process control and the following responsibilities of the program must be met.

a. Plant monitoring shall:

- Conduct a 10-bird subgroup test for each chiller system at a randomly selected time for each two hours of production.

- Immediately record the current CUSUM number and keep production informed about any process trends.

b. Production shall:

- Consistently produce product in compliance with postchill finished product standards.

- Respond to trends shown by plant tests and inspection monitoring tests by reviewing the finished product record, assigning probable cause, correcting the problem, and maintaining this action as needed to produce acceptable product for the consumer.

c. Inspection shall:

- Spot-check plant monitoring actions to assure they are meeting their program requirements.

- Select random times for postchill monitoring. Each chill system is monitored twice per shift. These times should be selected prior to the first birds of the shift arriving at the sampling point. Plant personnel should not know these monitoring times.

- Conduct subgroup tests at preselected random times and compare results to the plant monitoring record. Correlate with the monitoring supervisor if results are not in agreement or if agreement is questionable.
- Record all monitoring observations, results, and actions on FSIS Form 6500-3 used by inspection. This record should contain all postchill findings to reflect the program's performance and the plant's willingness to follow its program.

2. Subgroup absolute limit exceeded

   If either an inspection or plant monitoring individual subgroup total exceeds the subgroup absolute limit (T+5) plant monitoring shall:

   - Determine if any of the last 5 postchill monitoring subgroups resulted in a CUSUM above the start number.

     If no: Immediately retest a subgroup online postchill to determine sample validity. If this retest subgroup total exceeds tolerance, plant monitoring will begin process actions in II.B.3.a.

     If yes: Plant monitoring will begin process actions in II.B.3.a.

3. CUSUM reaches action number

   Once CUSUM reaches the action number, the process is judged to be in questionable control. When this happens the following responsibilities must be met.

   a. Plant monitoring shall:

      - Notify the IIC and the production supervisor responsible for product in the chiller than the process has reached the action number.

      - Suspend random time postchill subgroup testing.

      - Review the postchill records with the responsible production supervisor to assist in assigning a procedural cause.

      - Immediately conduct an additional postchill product action subgroup test. If the product action test subgroup total exceeds tolerance, subsequent product will be identified by plant monitoring for rework. Product will continue to be accumulated for rework until a subsequent subgroup test results in a subgroup total equal to or less than tolerance.

      - Postchill product action testing continues on at least every 30 minutes of product until two consecutive product action subgroup totals equal tolerance or below.

- After two consecutive postchill product action subgroup tests result in subgroup totals equal to or less than tolerance, two things happen:

  1. Plant monitoring resumes random time postchill subgroup testing.

  2. CUSUM is reset.

     If the two consecutive product action subgroup totals at or below tolerance do not cause CUSUM to fall to start or below, CUSUM is reset at the start number.

b. Production shall:

- Review postchill records with plant monitoring personnel and assign the probable procedural cause for nonconformance.

- Make immediate employee assignments at postchill to assure that product leaving the chiller is meeting the postchill finished product standard.

- Examine processing procedures in order to correct and maintain procedures that will consistently produce product in conformance with postchill finished product standards.

c. Inspection shall:

- Monitor product and process actions to assure that the program requirements for action are met.

- Suspend random time inspection monitoring when plant monitoring is conducting product action.

- Correlate nonconformance criteria with plant monitoring supervisor as needed.

- Record all monitoring observations, results, and actions on the FSIS Form 6500-3 postchill form record used by inspection. Any process correction required outside of the program design should be documented, distributed, and filed

in a separate folder.

III. Product Corrective Action

1. The finished product program is designed to provide fast feedback …

   Once the prechill or postchill product has been identified as having been produced when the process was under questionable control, additional online subgroup testing by plant monitoring is required to determine its conformance to the standard. If any of the additional plant subgroup testing results in a subgroup total exceeding tolerance, offline product corrective action must take place. The responsibilities during product corrective action are as follows:

   a. Plant monitoring shall:

      - Identify the affected product for production so that the affected lot may be segregated and accumulated offline for rework.
      - Identify the segregated lot with plant hold tags.
      - Maintain control of the identified lot throughout production's rework action to assure product wholesomeness and that the total lot is reworked before additional testing.
      - Maintain control and identity of the lot after rework for plant monitoring personnel to test and release only after subgroup results indicate reworked product meets the standard.

   b. Production shall:

      - Segregate product identified by monitoring personnel for rework.
      - Rework the segregated lot using good commercial practices to protect the product's wholesomeness for the consumer.
      - Accumulate the reworked product for plant monitoring testing.

   c. Inspection shall:

      - Spot-check rework segregation, identification, and control by plant

monitoring to assure that program requirements are met.

- Record observations, results, and actions on the FSIS Form 6500-3 used by inspection. Record all results in order to reflect the plant's willingness to met its program requirements. Any process correction required outside the program design should be documented, distributed, and filed in a separate folder.

2. Reworked product must be tested with a randomly selected subgroup test of the accumulated reworked lot. Before product is released, the random subgroup test must result in a subgroup total equal to or less than tolerance. If the subgroup test of a reworked lot results in a subgroup total exceeding tolerance, the lot must be reworked again before another subgroup is selected. The responsibilities for the rework actions are as follows:

   a. Plant monitoring personnel shall:

      - Select a random subgroup from throughout the lot only after the total lot has been reworked.

      - Conduct the subgroup test using the same criteria (prechill or postchill) that resulted in the rework action.

      - Release the lot if the reworked subgroup test resulted in a subgroup total equal to or less than tolerance.

      - Identify and control the lot to be reworked again if the reworked subgroup total exceeds tolerance.

   b. Production shall:

      - Rework the total lot using good commercial practice for reconditioning and handling of product.

      - Maintain the identity and condition of reworked product until released by plant monitoring personnel.

   c. Inspection shall:

      - Spot-check the rework procedure to assure that plant monitoring

and production meet the requirements of the program.

- Record monitoring observations, results, and actions on the appropriate finished product record. Record all results and observations that reflect the program's performance and the plant's willingness to follow its program on the appropriate FSIS Form 6500-1, 6500-2, or 6500-3 used by inspection. Any process correction required outside the program design should be documented, distributed, and filed in a separate folder.

IV. Subgroup Sample Return

After subgroup tests are completed, the prechill and postchill processing nonconformances shall be corrected prior to returning the samples to the product flow. Samples with trim nonconformances shall be returned to the trim station for correction prior to their return to the product flow.

V. Reduced Frequency Testing for Plants with Approved Online Slaughter Quality Control Program with Good Process History

This reduced frequency section is *not applicable to SIS*. After a history of consistent compliance with the finished product standard has been established for an evisceration process, plant monitoring and inspection personnel can reduce the frequency of their monitoring by one-half.

- Good prechill history is established when no postchill location testing using prechill criteria has been required for 10 consecutive workdays. Reduced frequency prechill testing will be every 2 hours for plant monitoring and once per shift for inspection personnel.

- Good postchill history is established when no intensive postchill testing for tentative product action has been required for 10 consecutive workdays. Reduced frequency postchill testing will be once per half-shift for plant monitoring and once per line per shift for inspection personnel.

- If questionable history is indicated while on reduced frequency by a required postchill location test using prechill criteria or by a postchill criteria test to determine product action, the process is judged to be in questionable control. Both plant monitoring and inspection personnel will increase the frequency of prechill and postchill testing to the original frequency. When the process

achieves a history of 5 consecutive workdays without intensive prechill testing at postchill location or postchill intensive testing for product action, plant monitoring and inspection personnel with return to reduced frequency testing.

Finished Product Standards

	SIS AND NELS	NTIS
Prechill Processing Nonconformance		
Tolerance (T)	25	30
Subgroup Absolute Limit (T+5)	30	35
Action Number	22	25
Start Number	11	13
Prechill Trim Nonconformance		
Tolerance Number (T)	12	12
Subgroup Absolute Limit (T+5)	17	17
Action Number	15	15
Start Number	8	8
Postchill Nonconformance		
Tolerance Number (T)	5	10
Subgroup Absolute Limit (T+5)	10	15
Action Number	10	14
Start Number	5	7

Insert Form 6500-1 here.

Insert Form 6500-2 here.

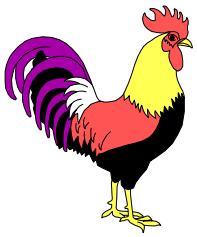
Insert Form 6500-3 here.

Insert flowchart 1 here.

Insert flowchart 2 here.

Insert flowchart 3 here.

WORKSHOP



Using the Finished Product Standards script and Attachment 1, complete the following exercise.

1. Define the following terms:

   a. CUSUM

   b. Nonconformance

   c. Tolerance

   d. Subgroup

   e. Action number

   f. Unit

2. List the two separate parts of the poultry finished product standards.

3. List the two categories within the prechill finished product standards.

4. Give the lighting requirements for finished product standards reinspection stations.

5. State the method used by both FSIS and the establishment to select sampling times.

6. List four establishment responsibilities in the finished product standards procedure.

7. List three inspection responsibilities in the finished product standards procedure.

8. A single carcass was observed to have the following findings during a prechill processing test. Check items, which are considered to be nonconformances. Calculate their weights by multiplying the *# of Incidents* and *Factor* columns.

✓ = Nonconformance X = No nonconformance

Findings	# of Incidents	X	Factor =	Weight
_____ one 1" grease stain	_____	X	_____	= _____
_____ three pieces of ingesta < 1/16"	_____	X	_____	= _____
_____ one intact lobe of an oil gland	_____	X	_____	= _____
_____ four lung fragments 1"	_____	X	_____	= _____
_____ a fragment of the bursa of Fabricius	_____	X	_____	= _____
_____ a complete crop	_____	X	_____	= _____
_____ fourteen feathers 1"	_____	X	_____	= _____
_____ four feathers < 1"	_____	X	_____	= _____
_____ trachea > 1"	_____	X	_____	= _____
_____ one condyle of the tibia obscured	_____	X	_____	= _____
_____ two complete lobes of an oil gland	_____	X	_____	= _____
_____ two whole lungs	_____	X	_____	= _____
_____ a 1/4" section of the end of the intestinal tract	_____	X	_____	= _____
_____ a split piece of the intestine big enough to form a circle	_____	X	_____	= _____

9. A single carcass was observed to have the following findings during a prechill trim test. Check items, which are considered to be nonconformances. Calculate their weights by multiplying the *# of Incidents* and *Factor* columns.

✓ = Nonconformance X = No nonconformance

Findings	# of Incidents	X	Factor =	Weight
_____ breast blister > 2"	_____	X	_____ =	_____
_____ two bruises 3/4"	_____	X	_____ =	_____
_____ one compound wingtip fracture	_____	X	_____ =	_____
_____ one short hock with tendons firmly attached to the bone	_____	X	_____ =	_____
_____ one scab 2"	_____	X	_____ =	_____
_____ one black/green bruise 1/4"	_____	X	_____ =	_____
_____ unmarked synovitis drum	_____	X	_____ =	_____
_____ two compound fractures in each humerus	_____	X	_____ =	_____
_____ two untrimmed short hocks	_____	X	_____ =	_____

Using the Finished Product Standards Program for Poultry Inspection Systems (Attachment 2), complete the following questions.

10. List the three conditions that must be met by a prechill FPS test in order for the dressing/evisceration and trim processes to be judged in control.

11. List the two conditions that must be met by a postchill FPS test in order for the chilling process to be judged in control.

12. List four establishment responsibilities in the FPS procedure.

13. What must occur immediately after a random time prechill trim test has identified an FSIS Form 6500-2, line 7 nonconformance?

14. State what must be determined when an inspection or establishment subgroup total exceeds the subgroup absolute limit.

15. List five actions required of the establishment whenever CUSUM reaches the action number.

16. State what must occur before process control is considered reestablished.

17. List three actions the establishment must take once prechill process control has be reestablished.

18. List the appropriate actions to take when feces is found during a 10-bird fecal contamination test.

19. How often are 10-bird fecal contamination checks done?

20. List the appropriate actions to take when feces is found during a prechill test.

21. List the appropriate actions to take when feces is found during a postchill test.

22. The following examples all refer to FSIS Form 6500-1, Processing Nonconformance.

a. FSIS monitoring test

20.	**Subgroup Total *(Lines 1 – 19)***		***31***
21.	**Starting Cusum**		
22.	**Add lines 20 and 21.**		
23.	**Subtract T = (*25*).**		
24.	**Current Cusum number – *If above action number, adjust to action number*.**		

This subgroup total exceeds the subgroup absolute limit.

_____ Yes _____ No

If yes, what should the FSIS inspector's first action be?

If no, what should the FSIS inspector's action be?

b. Establishment random test

20.	**Subgroup Total *(Lines 1 – 19)***		***21***
21.	**Starting Cusum**		***21***
22.	**Add lines 20 and 21.**		***42***
23.	**Subtract T = (*25*).**		***25***
24.	**Current Cusum number – *If above action number, adjust to action number.***		***17***

Based on this subgroup result, the establishment should suspend random testing of the dressing/evisceration process.

_____ Yes _____ No

c. Establishment random test

20.	**Subgroup Total *(Lines 1 – 19)***		***27***
21.	**Starting Cusum**		***21***
22.	**Add lines 20 and 21.**		***48***
23.	**Subtract T = (*25*).**		***25***
24.	**Current Cusum number – *If above action number, adjust to action number*.**		***23***

Based on this subgroup result, the establishment should suspend random testing of the dressing/evisceration process.

_____ Yes _____ No

d. Prechill test at postchill location

20.	**Subgroup Total *(Lines 1 – 19)***		***26***
21.	**Starting Cusum**		
22.	**Add lines 20 and 21.**		
23.	**Subtract T = (*25*).**		
24.	**Current Cusum number – *If above action number, adjust to action number*.**		

Based on the subgroup result in problem d, subsequent product exiting the chiller is free to move.

_____ Yes _____ No

e. Prechill tests

20.	**Subgroup Total *(Lines 1 – 19)***		***24***	***25***
21.	**Starting Cusum**		***22***	***21***
22.	**Add lines 20 and 21.**		***46***	***46***
23.	**Subtract T = (*25*).**		***25***	***25***
24.	**Current Cusum number – *If above action number, adjust to action number*.**		***21***	***21***

Based on these subgroup results, process control has been reestablished.

_____ Yes _____ No

What is the starting CUSUM of the next subgroup?

f. Prechill tests

21.	**Subgroup Total *(Lines 1 – 19)***		***37***	***26***	***23***	***26***	***20***
22.	**Starting Cusum**		***8***	***20***	***21***	***19***	***20***
23.	**Add lines 20 and 21.**		***45***	***46***	***44***	***45***	***40***
24.	**Subtract T = (*25*).**		***25***	***25***	***25***	***25***	***25***
25.	**Current Cusum number – *If above action number, adjust to action number.***		***20***	***21***	***19***	***20***	***15***

Based on these subgroup results, process control has been reestablished.

_____ Yes _____ No

If yes, list three things that should occur.

If no, what should happen?

23. Imagine that you are the QC technician examining 10 birds for prechill processing nonconformances and trim nonconformances. Using the defect classification criteria guide and the information below complete the columns for subgroup 5 on FSIS Forms 6500-1 and 6500-2 on the following pages.

Bird 1: 3 specks of ingesta < 1/16” 2 gall stains > 1” 1 feather > 1” `	***Bird 6:*** 12 specks of grease > 1/16” 1 whole gall bladder 1 whole lung
Bird 2: 5 specks of ingesta < 1/1l6” 2 specks of grease > 1/16” but < 1” 2 lung fragments 13 hairs	***Bird 7:*** 3 pinfeathers 1 bruise > 1” 2 scabs > ½” 1 breast blister
Bird 3: 7 specks of ingesta < 1/16” 1 whole rosebud 2 whole lungs	***Bird 8:*** 1 speck of grease < 1/16” 1 lung fragment 1 partial breast blister 2 scabs < ½”
Bird 4: 2 specks of ingesta > 1/16” 4 oil gland remnants 1 rosebud portion with 3 mucosal folds	***Bird 9:*** 1 trachea < 1” 1 tibiotarsal joint with 1 condyle completely covered 5 specks of ingesta > 1/16” 1 black/green bruise ½”
Bird 5: 6 specks of ingesta < 1/16” 1 cloacal remnant 2 pieces of lung > ¼” 29 hairs	***Bird 10:*** 1 trachea > 1” 4 specks of ingesta > 1” 1 lung fragment 1 compound wingtip fracture

Insert FSIS Form 6500-1 here.

Insert FSIS Form 6500-2 here.

24. Using your results from the previous prechill tests, what action(s) would you take based on the subgroup absolute limit and CUSUM results for the prechill processing test?

25. What would the CUSUM value be for subgroup number 6?

26. Using your results from the previous prechill tests, what action(s) would you take based on the subgroup absolute limit and CUSUM results of the prechill trim test?

27. Imagine you are the QA technician examining 10 birds for postchill nonconformances. Using the defect classification criteria guide and the information below, complete the columns for subgroup 3 on FSIS Form 6500-3.

Bird 1: 3 specks of ingesta < 1/16"	***Bird 6:*** 1 speck of grease > 1/16"
Bird 2: None	***Bird 7:*** 1 speck of ingesta < 1/16"
Bird 3: None	***Bird 8:*** 1 speck of grease < 1/16"
Bird 4: 2 specks of ingesta > 1/16"	***Bird 9:*** None
Bird 5: 5 specks of ingesta < 1/16"	***Bird 10:*** None

Insert Form 6500-3 here.

28. Is the postchill process in control?

_____ Yes _____ No

What actions should you take based on the subgroup results?